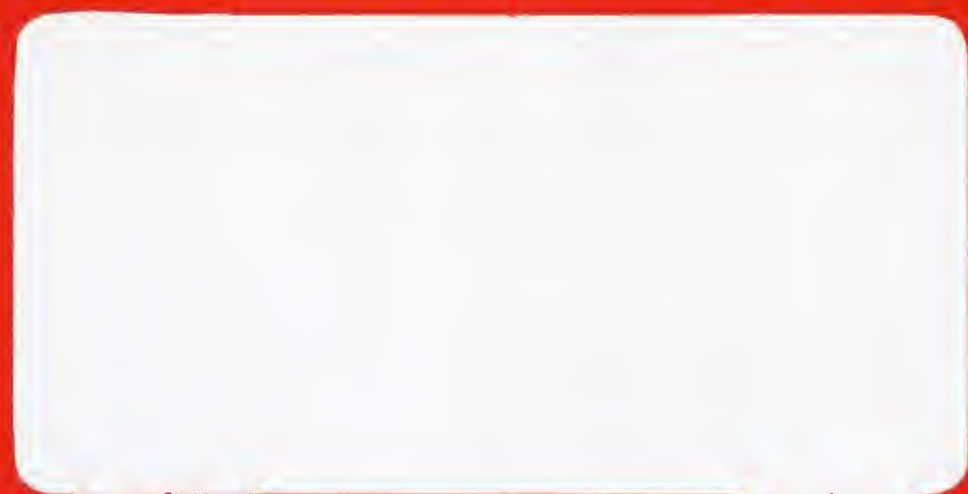# Faculty Working Papers

PRICING OF LIQUIDITY FOR PREFERRED STOCKS ON
THE NEW YORK STOCK EXCHANGE

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#662

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Summary

    This study examines the factors that influence the market liquidity
(bid-ask spread) for preferred stocks listed on the NYSE. The results
indicate that a large percent of the variation in the dollar spread and
the percent spread can be explained in terms of three or four variables.

PRICING OF LIQUIDITY FOR PREFERRED STOCKS ON THE NEW YORK STOCK EXCHANGE*

Frank K. Reilly**

INTRODUCTION

As of the end of 1978 there were over 600 preferred stock issues listed on the New York Stock Exchange (NYSE) including convertible issues. This compared to about 1,600 common stock issues. Although there are about 37 percent as many issues, the volume of trading in the preferred issues is substantially less than the trading volume for common stock issues. Because of the difference in volume, one often hears the complaint that a major problem with preferred stock is its lack of liquidity. Unfortunately there has been little rigorous analysis of the actual liquidity available for preferred stock and apparently no consideration of what factors influence the trading spread (bid-ask prices) for alternative preferred stock issues. This lack of research on preferred stock liquidity is in contrast to the several very fine studies that have developed a theory regarding liquidity for investment assets and tested the theory through an analysis of market spreads (bid-ask) for common stocks on the NYSE, ASE, and OTC [3, 4, 5, 8, 11, 17, 18, 19].

The purpose of this study is to examine the liquidity available for straight cumulative preferred stock issues on the NYSE (no convertible issues are included). Following a discussion of the sample and the measure of liquidity, the second part of the study examines the factors that one might expect to influence the market makers spread. In the third

part the results of the analysis are presented and discussed. In the final section, our results are compared to the results for studies that examined market spreads on common stock.

SAMPLE AND LIQUIDITY MEASURE

Sample

The sample is composed of all straight cumulative preferred issues listed on the New York Stock Exchange (NYSE) on February 1, 1977. Specifically, there are no convertible preferred stock issues and/or income preferred issues. The potential sample for this study differs from the prior common stock studies because a given firm can have one or several preferred stock issues concurrently listed on the NYSE--i.e., some large public utilities have five or more issues listed. It is legitimate to include more than one preferred stock issue for a firm because almost all the explanatory variables are "market" factors related to the specific preferred stock issue, rather than internal firm characteristics. It was considered preferable to include up to three preferred stock issues per company. If a company had more than three preferred stock issues listed, three of those listed were randomly selected. The result was a sample of 220 preferred stock issues, which is every non-convertible preferred stock issue on the NYSE given the constraints on issues per company.

Liquidity Measure

The measure of liquidity is the average of the daily closing bid-ask spread during the first ten trading days in February, 1977. The bid-ask prices were contained in the publication entitled, "Stock Quotations on the New York Stock Exchange," published by Francis Emory Fitch, Inc.

FACTORS INFLUENCING LIQUIDITY COST

The bulk of the theory regarding what factors should affect the cost
of liquidity for a market asset was set forth in the first two papers that
examined the bid-ask spread for common stocks. Specifically, the papers
by Demsetz [8] and Tinic [17] discussed the theoretical reasoning behind
the market spread and subsequent articles concentrated on the empirical
testing of this theory. For an extensive review of the literature in
this area see [6] and [21].

Why a Spread?

Briefly, the marketmaker's spread between his bid and ask for a security
represents his price for providing immediate liquidity to the anxious buyer
or seller. Specifically, it is acknowledged that there is an equilibrium
price for a security based upon the long-run demand and supply curves for
the asset. At the same time, when an investor decides to buy or sell the
asset, he or she may not be willing to wait until a compensating buyer or
seller comes to the market to complete the transaction. Put another way,
the investor wants immediate liquidity and the marketmaker is the person
who is willing to provide this immediate liquidity by buying or selling for
his own account. At the same time, one should not expect the marketmaker
to provide this liquidity service free of charge. To derive a return, the
marketmaker will bid a price below the long-run equilibrium price for an
investor who wants to immediately sell the asset, or he will ask a price
above the prevailing long-run equilibrium price for an investor who desires
to immediately buy the asset. Obviously, the difference between the bid
and the ask is the return the marketmaker derives for providing this
service--i.e., the bid-ask spread is the marketmakers price for providing

immediate liquidity. The purpose of this study is to analyze what charac-
teristics of the security or the market for preferred stock issues on the
NYSE influences the price of liquidity.

Price

The price of the asset has always been considered a major variable
influencing the market spread because liquidity cost should be propor-
tional. If not, it was contended that some traders would take advantage
of the lower percent liquidity cost and trade more heavily in the asset
that had the lower cost, bid up the price, and eventually arbitrage the
difference away. Most studies on common stocks spreads found that the
regression coefficient for the price variable was statistically signi-
ficant and positive, and implied that the relationship between price
and spread was proportional. A study by Benston and Hagerman [4]
directly tested the proportionality question and found that the rela-
tionship between the security price and the spread was not strictly
proportional. If it was proportional it would be possible to examine
the percent spread (spread/price), but because the liquidity cost is
apparently not directly proportional to price it is necessary to con-
sider the price of the security as a separate variable.

The price variable employed was the average of the closing prices
for the stock on the NYSE during the first ten trading days in February,
1977. In cases where a stock did not trade during a day, the mean of
the closing bid and ask is used as the price.

Trading Activity

The theoretical discussion indicates that the second most important
variable is the time pattern of trading. Specifically, it is contended

that the greater the trading activity in a stock, the less time between transactions, which implies a shorter waiting time for a marketmaker who wants to buy or sell stock from his inventory and, therefore, the dealer that is providing the immediate liquidity is willing to quote a smaller spread (i.e., provide the liquidity service at a lower cost). The empirical results with various proxies for this trading activity variable have generally been quite good even though several different proxies have been used. In the current study, a number of proxies for trading activity are considered.

Share Volume of Trading. This is the average of the daily share volume of trading in each issue during the first ten trading days in February, 1977. This data was derived from the composite results published daily in the Wall Street Journal.

Number of Shareholders. Another variable used as a proxy for the time rate of transactions is the number of shareholders. It is contended that with more shareholders there is a higher probability of trading. This figure was derived from the Standard and Poor's Corporate Records. In some instances the only figure available was the total number of shareholders for all the firm's preferred stock issues. Given multiple preferred stock issues it was necessary to allocate shareholders among the various issues on the basis of the par value of the issues.

Size of the Issues. A proxy used by Fisher [10] for marketability for bonds was the total par value of the issue. It was reasoned that with a larger issue there would be more owners and, therefore, more

trading. The first proxy for issue size is the <u>number of shares</u> <u>out-standing</u> as shown in the <u>Corporate Records</u>. The second measure of issue size is the <u>par value of the issue</u>. Finally, one can use the <u>market value of the issue</u> which is equal to the number of shares out-standing times the average closing price of the stock during the first ten trading days in February, 1977. All three proxies are used.

<u>Consistency in Trading</u>. A rather extreme measure of the time rate of transactions is consistency in trading defined as the percent of days when the stock is traded. Obviously, a stock that does not trade for several days will have a very low time rate of transactions and be a very high risk security for a marketmaker. Consistency was measured as the percent of days during the first ten trading days in February, 1977 when the stock traded. This variable has been considered in several prior studies for common stocks but generally has not been significant simply because almost all common stocks on the NYSE trade every day, or at least 80 percent of the days. Therefore, the question typically has <u>not</u> been whether a common stock on the NYSE will trade, but <u>how much</u> it will trade. In the case of preferred stocks this variable should be more discriminating because a casual analysis of the price quotes in the <u>Wall Street Journal</u> indicated that on many days various preferred stock issues did not trade. The final data indicated a number of preferred stock issues that did not trade on <u>any</u> of the ten days examined.

Institutional Involvement

The effect of institutional involvement in a stock on the liquid-ity for the stock is a controversial question. Some authors feel that

institutions tend to trade in large blocks of stock and when they carry out these trades it is a major strain on the market for the stock and results in major price adjustments. As a result these individuals consider institutional interest in a stock as a negative factor for the marketmaker who must provide liquidity under such extreme conditions. Specifically, they would hypothesize that the greater the institutional involvement in a stock, the larger the market makers spread--i.e., they would expect a positive relationship between institutional interest and the bid-ask spread. In contrast, other observers have contended that because institutions are typically active traders (i.e., their average trading turnover is above the average) that they provide overall liquidity in the stocks they own--especially to each other. This line of reasoning would imply a benefit from institutional involvement--i.e., these observers would expect a negative relationship between institutional involvement and the spread. A third possibility might be a "humped" relationship between institutional interest and the spread. One might expect a positive relationship at low levels of institutional involvement since the few institutions could be a disruptive influence when they traded, but there would be a negative relationship at high levels of institutional interest when there are enough institutions involved to generate strong trading activity.

The impact of institutional involvement is measured by three variables: (1) the number of institutions owning the issue, (2) the total number of shares owned by the institutions, and (3) the percent of outstanding shares owned by institutions. The data for the first two variables is contained in the Standard and Poor's Stock Guide, while

the third variable is computed by dividing the total shares owned by
institutions by the total shares outstanding for the issue.

Risk

The marketmaker at any point in time will either own shares of the
stock involved (be long) or be short shares. Obviously he is concerned
with adverse price movements over time that could cause inventory losses.
Because the probability of an adverse price movement is greater for
stocks with more price volatility, the risk associated with an issue is
greater for stocks with greater price volatility. The price variability
is measured as the <u>standard deviation of the daily percent price change
without sign</u> for the first ten trading days during February, 1977. We
considered using the high and low price for some period of trading but
an examination of several of the issues indicated many instances when
the daily high and low prices were the same because there were no trades
or very few trades.

We did <u>not</u> use the beta coefficient as a measure of risk for two
reasons. First, the use of the systematic risk variable assumes that
the investor's portfolio is completely diversified so all unsystematic
risk is eliminated. In the case of a stock exchange specialist with a
limited number of issues (typically 7-10) this is a questionable assump-
tion. It is even more questionable when considering a preferred stock
issue that enjoys limited trading. The second problem with the beta
coefficient is two computational difficulties. One is concerned with
what is the appropriate market index to employ? Finally, there is the
question of how reliable the computed beta would be because of the
limited trading. In this latter regard see [ ].

Another risk indicator considered is the rating for the preferred

stock issue assigned by Standard and Poor's and contained in the Stock

Guide. A Standard and Poor's preferred stock rating is an assessment

of the capacity and willingness of an issuer to pay preferred stock

dividends and any applicable sinking fund obligations. The total

range of available ratings go from AAA (the highest rating) to D (a

non-paying issue in default) and also includes an NR which indicates no

rating. None of the issues analyzed were below CCC so there were eight

groupings including issues that were NR. Each rating was assigned a

number from one (AAA) to eight (NR).

Competition

The effect of competition on the cost of liquidity has likewise

experienced some controversy. On the one hand, one might speculate

that because the time rate of transactions is such an important

variable that there might be economies of scale in trading--i.e., the

concentration of all trading with one marketmaker would allow him to

provide a better market. This would obviously imply a monopoly in

marketmaking. In contrast to this position, it is contended that the

economies in trading are related to the total industry, not to the

individual stock. Except for the original Demsetz study [9], all sub-

sequent research on common stock spreads has generally supported the

latter hypothesis--i.e., there has been a negative relationship between

the number of competing marketmakers in an issue and the spread.

Similar to some of the common stock studies, competition is measured by

the number of exchanges where the stock is traded. Given the generally

low level of trading in preferred stock issues there is limited dual

listing so this variable was not expected to be as significant as in prior common stock studies.

Summary of Explanatory Variables

The following factors are considered as measured by the proxies listed.

1. Price

   - Average of closing price for 10 day period.

2. Trading Activity

   - Share volume of trading.

   - Number of shareholders.

   - Number of shares outstanding.

   - Par value of the issue.

   - Market value of the issue.

   - Consistency in trading (percent of days traded).

3. Institutional Involvement

   - Number of institutions owning the issue.

   - Total shares owned by institutions.

   - Percent of issue owned by institutions.

4. Risk

   - Standard deviation of daily percent price change (w/o sign).

   - Standard and Poor's preferred stock rating.

5. Competition

   - Number of exchanges where stock is traded.

PRESENTATION OF RESULTS

Description of Variables

Because this is the first study concerned with the measurement of liquidity for preferred stock and is the initial use of some of the explanatory variables, it seems appropriate to briefly describe the variables. Therefore, Table 1 contains the descriptive statistics for the variables included in the study.

The dollar spread which is the major liquidity variable in the study varied from about eleven cents to over five dollars and had a mean value of about a dollar, which seems reasonable since the average price was about 58½. The notion that the spread should be directly proportional to the price was not supported by the results for the percent spread since this variable ranged from two tenths of one percent to about 7.5 percent and had a mean value of 2 percent.

The variables that were proxies for the time pattern of trading indicated significant dispersion. Average daily share volume ranged zero (some did not trade), to stocks with average volume exceeding one hundred thousand shares. The mean volume was about 13 thousand shares a day. Notably, 21 issues never traded during the ten day test period. Likewise, the number of shareholders varied from 29 to 28,000, while shares outstanding varied from 39,000 to 10 million.

The market values ranged from 1.55 million to 500 million. A notable variable is the percent of days traded. As mentioned, there were 21 stocks that never traded and only 37 stocks that traded every day. As shown, the mean percent of days traded is only 55 percent which is significantly below the normal experience with common stocks on the NYSE.

TABLE 1

DESCRIPTIVE STATISTICS FOR VARIABLES IN STUDY

Variable	Min.	Max.	Mean	Std. Dev.	Coeff. Var.
$ Spread (SPD)	0.113	5.250	1.015	0.719	0.70881
% Spread (PSPD)	0.002	0.075	0.020	0.014	0.71101
Average Price (P)	5.806	131.013	58.560	33.193	0.56681
Share Volume (V)(00)	0	1,481	133.464	263.814	1.97667
No. Shareholders (NS)	29	28,378	2,703.005	3,229.427	1.19475
Shares Outst. (NSO)(000)	39	10,000	775.973	1,277.580	1.64642
Par Value of Issue (PAR)	250	611,000	37,950.345	61,315.970	1.53802
Mkt. Value of Issue (MKTV)	1,555	500,000	32,901.355	50,603.012	1.53802
% Days Traded (PDAY)	0	100	55.500	32.886	0.59254
No. of Inst. (NINT)	0	245	21.795	27.545	1.26381
Shs. Held by Inst. (NHLD)	0	4,731	138.850	441.191	3.17747
% Held by Inst. (PHLD)	0	91.220	25.021	24.947	0.99707
Std. Dev. of Pr. Ch. (SD)	0	1.848	0.445	0.333	0.74814
S & P Stk. Rating (SAPR)	1	8	4.055	1.590	0.39204
No. of Exch. (NEX)	1	4	1.205	0.486	0.40374

The institutional involvement in preferred stocks is not very extensive since the mean number of institutions owning the stock was 21 and the average percent owned was only 25 percent of the issues. This distribution appeared to be skewed to the left since there were 39 stocks with no institutional holders and another 10-15 with about 1 percent held by institutions.

The ratings were well distributed along the full range and averaged a 4.0 which is a BBB. The competitive variable indicating the number of exchanges ranged from one to four, but was heavily concentrated at one--i.e., 182 of the 220 stocks were only traded on the NYSE. This explains the average value of 1.2.

Simple Correlations

The simple correlation matrix in Table 2 indicates initial relationships and also the potential for multicollinearity. Regarding the dollar spread variable, these results consistently indicate that where there is a strong a priori relationship, the sign of the correlation is as expected. Specifically, dollar spread is positively related to price and is negatively related to all the trading variables. Notably, the percent of days traded variable had the highest correlation with dollar spread (-.594). The correlation between dollar spread and the institutional variables were mixed--i.e., two correlations were positive and one was negative. The correlation with the standard deviation risk variable was positive and significant as expected, while the S & P rating variable had the expected negative sign but was not significant. Finally, the correlation with the exchange variable had the expected sign, but was insignificant.

TABLE 2

CORRELATION COEFFICIENTS

(All correlations above .15 are significant at the .05 level)

	SPD	PSPD	P	V	NS	NSO	PAR	MKTV	PDAY	NINT	NHLD	PHLD	SD	SAPR	NEX
SPD	--														
PSPD	.44	--													
P	.495	-.356	--												
V	-.009	-.177	.261	--											
NS	-.382	-.224	-.262	-.041	--										
NSO	-.410	-.269	-.300	-.078	.593	--									
PAR	-.067	-.199	.125	.047	.227	.292	--								
MKTV	-.221	-.344	.06	.032	.411	.836	.443	--							
PDAY	-.594	-.479	-.168	.268	.439	.432	.149	.296	--						
NINT	.08	-.148	.246	.145	.124	.433	.419	.706	-.063	--					
NHLD	-.097	-.123	.016	.016	.241	.703	.358	.894	.097	.816	--				
PHLD	.379	.166	.299	.076	-.326	-.175	-.009	.013	-.464	.547	.234	--			
SD	.378	-.05	.481	.232	-.203	-.284	.02	-.11	-.031	.09	-.09	.163	--		
SAPR	-.09	-.13	.016	.047	.062	-.023	-.044	-.09	.226	-.216	-.157	-.187	.028	--	
NEX	-.04	.053	-.033	-.058	.28	.099	.108	.097	-.042	.102	.072	-.056	-.014	-.044	--

Percent Spread Correlation. The correlations with the percent spread variable were generally similar to the dollar spread results. A very interesting result was the -.356 correlation with price. This significant negative result indicates that the dollar spread is not proportional to price, since if it were the relationship would be close to zero. The negative sign indicates that the percent spread declines for high priced securities which is consistent with the results by Benston and Hagerman [4] for common stocks.

Again, all the trading variables had negative correlations with the percent spread and the percent of days trading variable had the largest correlation, followed by the market value variable. The institutional trading results were again mixed, with two negatives and one positive. The standard deviation variable was negative (which was not expected), but insignificant. The rating variable was negative as expected, but the number of exchanges variable was positive and insignificant and the sign was inconsistent with expectations.

Other Correlations. The major multicollinearity problems are among the trading variables and institutional involvement variables. As expected, there is a strong positive relationship among the number of stockholders, number of shares outstanding, market value of issue, and percent of days traded. Also, there is a very strong relationship between the institutional involvement variables (NINT and NHLD), and between these two variables and the market value variables. This latter result is consistent with the liquidity needs of institutional investors--i.e., they generally must concentrate their holdings in

issues with large market value (see [14] for a discussion of this topic). The remaining correlations were generally quite small.

Multivariate Models

The multivariate regression results for both dollar spread and percent spread are contained in Table 3. The overall results for the dollar spread regression were quite good based upon an adjusted R^2 of .536, and a very significant F statistic of 20.48. In terms of the individual variables, the percent of days traded coefficient was most significant. Because of the strong intercorrelations with the other trading variables, the only other trading variable that approached significance was the market value coefficient. All the other trading variable coefficients had the wrong signs and were insignificant.

The price variable coefficient also was very significant and positive as expected. The standard deviation of price change variable was likewise significant and positive as expected. The only institutional involvement variable coefficient to approach significant was the "shares held by institutions" variable and the coefficient was positive which would indicate an adverse impact from institutions.

The percent spread regressions likewise had a significant adjusted R^2 (.389) and F value. While the overall regression results were significant, they were not as strong as the dollar spread results and some of the individual variable results differed. In this regression, the market value variable was most significant, followed by shares held by institutions, and percent of days traded. Again, the coefficient for the shares held by institutions variable was positive indicating an adverse impact.

TABLE 3

REGRESSION RESULTS WITH ALL VARIABLES ENTERED

Dependent Variable:	$ Spread		Percent Spread	
Variable	Coefficient	t-Value	Coefficient	t-Value
Constant	1.073	6.35	0.0355	9.61
Ave. Price	.00832	5.44	--	--
Share Volume	.000028	0.196	.000001	0.32
No. Shareholders	.0000025	0.170	.0000016	0.47
Shares Outst.	.000082	1.132	.0000032	2.18
Par Value	.00000033	0.503	.0000000	0.89
Mkt. Value	-.0000050	1.894	-.0000003	6.50
Percent Days Tr.	-.01133	7.823	-.000169	5.12
No. of Inst.	-.00283	0.874	-.00017	2.28
Shs. Held by Inst.	.00041	1.719	.000032	6.15
Perc. Held by Inst.	.00067	0.30	.000001	0.03
Std. Dev. of Pr. Ch.	.447	3.79	.000484	0.19
S & P Stk. Rating	.441	0.20	-.00049	0.97
No. of Exch.	-.0563	0.77	.00198	1.18
Adj. R^2	.536		.389	
F	20.48		12.62	
Durbin-Watson	2.089		1.999	

The other statistically significant variable coefficients were
shares outstanding which had a positive sign which is inconsistent with
expectations, and the number of institutions holding the stock which
was negative. This latter sign is at odds with the "shares held by
institutions" result.

Table 4 contains the results from multivariate regressions that
included a subgroup of the independent variables--those that were sig-
nificant or almost significant while trying to keep a variable from
the major categories. Notably, the adjusted R^2 <u>increased</u> slightly
(from .536 to .548) and the F value increased substantially (from
20.48 to 45.19). The percent days traded coefficient was still most
significant followed by price, then standard deviation of price change,
and market value. In all these instances of significant coefficients,
the signs were as expected. When we dropped the number of shares out-
standing which was insignificant and had the wrong sign, the R^2
declined very slightly and the F value increased further. Finally
when we dropped the market value variable, the R^2 declined and the F
value increased to 65.71. At this point the results indicate that
about 54 percent of the variation in dollar spread can be explained
by three variables: percent of days traded, price, and the standard
deviation of price change.

Table 5 contains the multivariate results for percent spread using
only the five variables that were significant in Table 3. Again, with
fewer variables, the adjusted R^2 was almost the same as in Table 3 and
the F value increased. Regarding individual variables, three variables
were quite close in significance: percent days traded, number of shares

TABLE 4

DOLLAR SPREAD REGRESSION RESULTS

DEPENDENT VARIABLE: DOLLAR SPREAD

Variable	Coefficient	T-Value	Coefficient	T-Value	Coefficient	T-Value
Constant	1.009772	9.82	1.061607	11.14	1.079264	11.33
Price	0.008239	5.71	0.007153	6.00	0.006582	5.71
No. Shs. Held by Inst.	0.000293	1.56	0.000244	1.32	-0.000050	0.66
Percent Days Traded	-0.010946	9.06	-0.010605	8.96	-0.011659	11.40
Std. Dev. of Pr. Ch.	0.431089	3.74	0.420046	3.64	0.458885	4.04
No. Shs. Outst.	0.000087	1.33	--	--	--	--
Market Value	-0.000005	2.18	-0.000003	1.75	--	--
Adj. R^2	0.548		0.546		0.542	
F-Value	45.19		53.68		65.71	

TABLE 5

PERCENT SPREAD REGRESSION RESULTS

DEPENDENT VARIABLE: PERCENT SPREAD

Variable	Coefficient	T-Value	Coefficient	T-Value	Coefficient	T-Value
Constant	0.036164	19.95	0.036126	19.63	0.032241	20.81
No. Shs. Outst.	0.000003	2.75	--	--	--	--
Percent Days Traded	-0.000169	6.11	-0.000150	5.51	-0.000127	4.65
No. Inst. Holders	-0.000136	2.63	-0.000183	3.67	--	--
No. Shs. Hld. by Inst.	0.000029	6.07	0.000031	6.37	0.000022	5.09
Market Value	-0.0000003	6.82	-0.0000002	6.30	-0.0000002	6.23
Adj. R^2	0.397		0.379		0.343	
F-Value	29.845		34.357		39.048	

held by institutions and market value, while results for number of
shares outstanding and number of institutional holders had significant
coefficients. Note that the two institutional variables generated oppo-
site results in terms of the sign of the coefficient. When the shares
outstanding variable was dropped, the R^2 declined, the F value increased,
and there was a small shift in the other coefficients. Finally, when
we dropped the institutional holders variable, the R^2 declined further
and the F value increased, but all the remaining variable coefficients
experienced a decline in their t values.

Again, it appears that most of the explanatory power of the model
can be captured by a few variables--i.e., percent days traded, number
of shares held by institutions and market value. One might question
whether the best model is not the one with institutional holders
included.

RESULTS COMPARED TO COMMON STOCK STUDIES

In general these results for the liquidity of preferred stocks
were very consistent with the prior results derived in common stock
studies. Specifically, price was always very significant although it
appears the relationship is not linear. Also, the time pattern of
trading is important although the specific variable that best repre-
sents this concept is different--the percent days traded has never
been important in common stock studies, but was the most significant
variable in this study because there is so much variation between
stocks. The other variable in this area that seemed important was the
market value of the issue. Risk was likewise significant as repre-
sented by the standard deviation of price change.

The major differences from common stock studies came in the institutional area and competition. Overall, the results as related to institutional involvement were not very significant. More important, the coefficients were mixed, with some of the more significant ones positive which would indicate an adverse impact on the spread due to institutional involvement. This differs from most common stock studies that indicated that institutional trading was beneficial to the market for the stock. It is felt that these divergent results could be explained by a "humped" relationship where the impact for small institutional holdings is adverse, but the impact becomes beneficial when there is heavy institutional involvement. Finally, the exchange variable that indicated competition was never significant which is not surprising because, as noted, almost all the stocks were only traded on the NYSE.

SUMMARY AND CONCLUSION

Summary

This study examined the factors that influence the market liquidity for preferred stocks on the NYSE. Following a discussion of general factors that should impact on liquidity we selected 13 potential variables from five categories: price, time pattern of trading, institutional involvement, risk, and competition.

The simple correlations indicated that the percent of days traded had the highest correlation with dollar spread followed by price. The correlations with the percent spread were consistent and also indicated that the relationship between dollar spread and price was not

constant, but negative which indicates that the percent spread declines for higher priced stocks which is similar to prior results for common stocks.

The multiple regressions indicated that the most important variables were percent of days traded, price, standard deviation of price, shares held by institutions, and market value. All these variables had the expected sign except the institutional involvement variable. The results for percent spread indicated that the market value variable was most important followed by shares held by institutions, and percent days traded.

When we reduced the explanatory variable universe, the overall results were about the same or better which means it is possible to explain over 50 percent of the variance of dollar spread with three variables: percent of days traded, average price, and standard deviation of price change. Alternatively, it is possible to explain about 34 percent of the variation in percent spread on the basis of market value, number of shares held by institutions, and percent of days traded.

Finally, the comparison with common stock studies indicated that most of the results were consistent and where there were differences they could be explained by the nature of the data.

Conclusion

The concern with liquidity for preferred stocks appears justified based upon the lack of trading in numerous issues. Still, it appears that there is a wide range of liquidity available and it is possible to explain the differences in liquidity for alternative preferred stock issues in terms of a very few variables.

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TESTING THE CASH-FLOW RELEVANCE OF THREE CONCEPTS
OF PROFIT

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Notes

[1] We required the firms to be listed during the entire sample period. The Center for Security Price Research (CRSP) monthly tape was used to select NYSE listed firms. A firm was considered listed if it had monthly stock returns available for the entire sample period.

[2] The absolute percentage error is computed as the average of $\left| \dfrac{\text{Actual EPS} - \text{Predicted EPS}}{\text{Actual EPS}} \right|$. Since this error metric can be explosive when the denominator approaches zero we truncated errors in excess of ten to a value of ten. This operation was done for a very small percentage of the cases.